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पोषण तथा पोषक आहार – परिभाषिक शब्दावली

(पहला पुनरीक्षण)

Indian Standard

NUTRITION AND NUTRITIOUS FOODS — GLOSSARY OF TERMS

(First Revision)

UDC 664·38+613·2 : 001·4

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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Price Group 6

Nutrition Sectional Committee, FAD 21

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Nutrition Sectional Committee had beed approved by the Food and Agriculture Division Council.

Clear descriptions of various terms relating to nutrition and nutritious foods are useful as reference when consulting Indian Standard Specifications in which these terms are employed. In view of this the glossary of terms relating to nutrition and nutritious foods has been prepared. Further this glossary is expected to facilitate common understanding of the terms by all concerned engaged both in internal and export trade as well as by scientists and lay consumers. Educational authorities in schools and colleges may also find such a reference useful for teaching purposes.

It should be emphasized that the descriptions in this glossary are meant for common understanding and are couched in simple language, relatively free from technical jargon. The descriptions are neither intended nor designed for legal use in any manner.

This standard was first published in 1979. It is being revised to bring it in line with the latest terminology being used in the area of nutrition.

Indian Standard

NUTRITION AND NUTRITIOUS FOODS — GLOSSARY OF TERMS

(First Revision)

1 SCOPE

1.1 This standard describes various terms used in the field of nutrition and nutritious foods.

2 TERMINOLOGY

2.0 The terms are arranged in alphabetical sequence. Some of the terms are related, in such cases, the definition in full has been given in the clause where the terms appear first and appropriate cross reference has been included.

2.1 Acid-Insoluble Ash

That portion of the ash component of foods (*see* **2.14**) which is insoluble in 10 percent hydrochloric acid; it consists mainly of silicon dioxide, and is an indication of sand content.

2.2 Acidity (of Curds)

The quantity of lactic acid developed during fermentation of curds.

2.3 Acidity (of Fat or Extracted Fat)

Level of free fatty acids developed in a fat as a result of breakdown of triglycerides by enzyme action or moisture.

2.4 Acidity (of Fruits)

Acidity is the level of acids in fruits. Many fruits contain acids of which malic acid and citric acid are the most common (citrus fruits, beetroot, pumpkin, cucumber). Oxalic acid is present in many foods, particularly in green leafty vegetables (spinach, amaranth), in certain fruits (green plantain, *AMLA*, *PHALSA*) and in some vegetables (drumstick, lotus stem, plantain flower). Tartaric acid occurs in certain fruits (grapes, tamarind pulp), and succinic and benzoic acids are also sometimes present.

2.5 Acidity (of Flours)

Level of acidic material developed in the fat component of foods like cereal flours, blended flours and the like, determined in the alcohol or water extract of the material.

2.6 Acidity (of Stomach)

Production of hydrochloric acid in the stomach resulting in a burning sensation; excessive production constitutes hyperacidity.

2.7 Aflatoxins

A class of toxic compounds produced when moulds such as *Aspergillus flavus* and *Aspergillus parasiticus* grow on foodstuffs like oilseeds, oilcakes and cereals; when used in the singular, the commonest aflatoxin, termed B_1 is usually implied.

2.8 Amino Acids

Organic compounds containing at least one amino (or imino) group and one carboxyl group which combine together to form proteins (*see also* **2.58** and **2.146**).

2.9 Anaemia, Nutritional

Reduced level of haemoglobin in blood caused by insufficiency of iron, folic acid, vitamin B_{12}, vitamin C and copper, sometimes singly, but usually in some combination of these nutrients.

2.10 Antioxidant

A substance which, even when present in minute quantities, can retard considerably the oxidation and spoilage of a fat or fat-containing food. Natural antioxidants include gallates, tocopherols and vitamin C.

2.11 Anti-tryptic Activity of Foods

This describes factors present in certain foodstuffs, like soyabeans and *DALS*, which reduce digestion of protein in the duodenum (upper intestine) by hindering the action of enzyme trypsin; destroying these factors by moist cooking enhances the protein value of the foodstuff.

2.12 Anti-vitamin

A substance which may inactivate, interfere with or destroy a vitamin.

2.13 Ascorbic Acid

The chemical name for vitamin C (*see* **2.174**).

2.14 Ash

Inorganic constituents or mineral matter left over when foods are incinerated, consisting mainly of oxides or hydroxides of calcium, sodium, potassium, magnesium, silicates, etc.

2.15 Available Lysine

The fraction of lysine present in a protein which is assimilable by the human body; lysine carries a reactive end-amino group which during heating tends to bind with hydroxy groups, for example, those present in carbohydrates, thus reducing lysine availability.

2.16 Avidin

A protein found in egg white which combines with the vitamin biotin in the intestine thus making it unavailable to the body; cooking will inactivate the avidin.

2.17 Avitaminosis (Hypo-vitaminosis)

Clinical conditions caused by severe vitamin deficiency.

2.18 Baby Food

General description covering foods designed for babies from birth till about 2 years of age.

2.19 Bacterial Count

The number of bacteria of all types present in one gram/one millilitre of food, determined by actual counting under magnification, after suitable plating and culturing.

2.20 Bakery Shortening

Vanaspati meant for use as a shortening or leavening agent in the manufacture of bakery products for promoting the development of the desired cellular structure in the bakery product with an accompanying increase in its tenderness and volume.

2.21 Balanced Diet

Suitable quantities and combination of various foods which together provide all the nutrients required daily and in quantities needed for healthy growth of a specified age group.

2.22 Basal Metabolic Rate

Energy required to keep up the involuntary work of the fully-relaxed body, such as respiration, circulation and maintenance of body temperature.

2.23 Beriberi

A disease caused by deficiency of thiamine (vitamin B_1) and characterized by disturbed nervous function and loss of muscle power.

2.24 Beverage

A drink, which may be either hot or cold , and either alcoholic or non-alcoholic.

2.25 Bio-Assay

Estimation of level or potency of a nutrient or drug using living organisms such as animals, bacteria or tissues.

2.26 Biological Value

The efficiency of utilization of a protein by the body, expressed as a percentage of the food nitrogen retained to the food nitrogen absorbed.

2.27 Biological Potency of Vitamins

Concentration of a vitamin preparation determined by using living organisms.

2.28 Biotin

One of the B-group of vitamins, widely distributed in many animal products, yeast, milk and molasses. Deficiency, which is rare, leads to nerve and skin changes.

2.29 Blanching

Heat treatment given mostly to fruits and vegetables to inactivate enzymes, for example by short exposure to boiling water, steam or dry heat; or alternate hot and cold treatment given mostly to vegetables such as tomatoes for removal of the skin.

2.30 Calciferol

Chemical term for one form of vitamin D (*see* **2.175**).

2.31 Calcium

Mineral required by the body for the formation of bone and teeth; milk, *RAGI* and green leafy vegetables are good sources.

2.32 Calorie (Food Calorie, Kilocalorie)

The quantity of heat energy required to raise the temperature of one kilogram of water through 1°C. The term 'Calorie' is used in nutrition to mean the kilocalorie (1 000 calories).

2.33 Carbohydrates

A class of chemical compounds, which include sugars, starch and cellulose, composed of carbon, hydrogen and oxygen.

2.34 Carotene

A yellow colouring matter found in foods. Of these carotenes, B-carotene is the most significant being converted into vitamin A in the body. Other carotenoids, some with and others without such vitamin activity, range from yellow to red in colour.

2.35 Casein

A protein of high biological quality which occurs in milk as colloidal suspension associated with calcium phosphate; casein is often used as a comparative reference protein standard in nutritional evaluation studies.

2.36 Cellulose

A carbohydrate present in the fibrous parts of cereals, vegetable and fruits; it is digested by ruminants but not by man and serves in human diet as roughage or bulk that facilitates bowel movement.

2.37 Cereals

Class of starch-rich staple foods which include rice and wheat. Coarse cereals like *JOWAR*, *BAJRA*, maize and *RAGI* are sometimes called millets.

2.38 Chlorophyll

Green colouring matter of plants.

2.39 Citrates

Salts of citric acid, a common constitutent of foodstuffs like lime and lemons, and an intermediate product in metabolic process in the body. Citric acid is used as an acidulant in soft drinks, and citrates are used for buffering formulated foods against changes in their acid-alkali balance.

2.40 Clinical Signs of Malnutrition

Indicators to an examining doctor that the nourishment of a person is imbalanced. Examples of such physical indicators are skin appearance, hair condition, eye appearance, oedema (swelling) and so on.

2.41 Coliform Count

The number of coliforms per gram of foodstuffs. Generally indicative of unhygienic conditions of manufacture/handling and storage.

2.42 Crude Fibre

The indigestible carbohydrate constituent of foodstuffs. It is kept at low levels in formulated foods, especially those meant for infants.

2.43 Cuticles

The outer epidermal layer of cells in grains and seeds. Also the red skin present on groundnut kernels.

2.44 Deficiency Disease

Condition caused by lack of one or more specific nutrients in the diet consumed.

2.45 Dextrins

Products of lower molecular weight derived from starches by the action of enzymes (amylases), acids and moist or dry heat. Dextrins are used as thickening agents in formulated foods.

2.46 Dextrose

Synonym for dextro-rotatory or D-glucose.

2.47 Diabetes

A condition characterized by inability to regulate the use of glucose, often because of an insufficiency or ineffectiveness of insulin, a hormone secreted by the pancreas.

2.48 Diet

All items of the foods actually eaten. It need not necessarily imply the food used in sick conditions or for reducing body weight.

2.49 Dietary Allowance

The quantity of a nutrient, or of food containing it, which is necessary to maintain good health.

2.50 Dietary Supplements

Foods which enhance nutrients that are inadquate in the diet.

2.51 Dietetic Foods

Foods designed to be specially helpful in correcting nutritional imbalances.

2.52 Digestibility

The proportion of a food component utilized by the body; it is measured as the difference between the quantity consumed and that excreted, expressed as a percentage of the quantity consumed.

2.53 Edible Oilseed Flour

Products which are made from oilseeds by partial or almost total removal of fat, are rich in protein of a quality suitable for human consumption.

2.54 Egg Albumin

The protein found in egg white; of all the natural proteins it has the highest biological value, for man, and is therefore sometimes used as a comparative reference standard.

2.55 Energy

The fuel value, usually measured as calories (*see* **2.32**) or joule (*see* **2.89**), available to the body by chemical transformation (burning) of carbohydrates, fats and proteins, and used for mechanical activity, replacement of heat lost and purposes of growth.

2.56 Enrichment

See Fortification (**2.72**), and Supplementation (**2.165**).

2.57 Enzymes

Biological catalysts that are proteinaceous in nature, and enormous in number and functional variety. They are present in all living systems and mediate numerous reactions.

2.58 Essential Amino Acids

Those amino acids which cannot be synthesized in the body, and must therefore be obtained from food in definite amounts for optimum growth. For the humans, 8 of the 22 amino acids are regarded as essential.

2.59 Essential Fatty Acids

These are linoleic and linolenic acid both of which the body needs for proper functioning, and cannot synthesize.

2.60 Expeller-Pressed

A term applied to the vegetable oil and oilcake which result when an oilseed is put through screw press, commonly called an expeller in India. In this machine, a threaded worm rotates in a barrel, generating heat and pressure which cause the oil to be squeezed out.

2.61 Fad Diets

Diets which become a craze. They are often based on inadequate or unproven assumptions, and though effective temporarily, for example for weight reduction, they are frequently ill-balanced and therfore fraught with danger in the long run.

2.62 Fats and Oils

Mixtures of glycerol esters of a number of fatty acids, either saturated or unsaturated; fats and oils are insoluble in and immiscible with water.

2.63 Fat Soluble Vitamins

These comprise vitamins A, D, E and K.

2.64 Fatty Acids

Derived from hydrolysis of fats forming carboxylic acid with carbon atoms 4 to 26. This may be saturated or unsaturated.

2.65 Feeding Programme

Provision of supplementary foods or nutrients to population groups that are deficient in them.

2.66 Feeding Trails

Experiments using animals or humans that are designed to test the effect or value of one or more variables in foods by measuring suitable indices.

2.67 Fermentation

The degradation of organic substances, particulary starches or sugars, to other products through the agency of micro-organisms.

2.68 Folic Acid

A water-soluble vitamin of the B-group involved in formation of red blood cells; deficiency is especially prevalent in pregnant women and children and causes anaemias. It is present in meat, liver and green leafy vegetables.

2.69 Food Poisoning

Food poisoning refers to an illness caused by a poison or toxin in the food when eaten.

2.70 Food-Borne Infection

Food-borne infection refers to an illness caused by pathogenic organisms carried by the food and transmitted to man.

2.71 Food Habits Surveys

Studies to gather data on the foods consumed by general populations, or specific groups among them, using such methods as weighment of foodstuffs used, recall by the housewife and the like.

2.72 Fortification

Addition of one or more nutrients to an article of food or drink to make up any existing deficiency in the diet.

2.73 Germs

In cereals and oilseeds, the term is used to describe the distinctive portion which bears the potential seedling, as also the nutrients provided by nature for its growth. In groundnuts, the germ occurs as a distinct white granule residing at one end in a niche.

2.74 Glucose

A sugar used extensively by the body as a source of energy. All the starch and sucrose present in the food is broken down to glucose, and consuming it directly confers no special advantage.

2.75 Gluten

A term used for a type of protein or proteins occurring particularly in wheat. On kneading wheat flour with water, gluten contributes elasticity to dough and improves the texture of bread, biscuit, *chapatis* and the like.

2.76 Glycogen

The storage form of glucose in the body.

2.77 Haemoglobin

A red pigment complex of an iron compound, haem, and protein, globin, which is present in red blood cells and carries oxygen from the lungs to body tissues.

2.78 Hidden Hunger

An insufficiency of vitamins and minerals resulting from lack of protective foods, which particularly affects the tissues.

2.79 Homogenization

The blending of immiscible phases to almost colloidal form by pressure dispersion, which sometimes has the effect of prolonging the stability and shelf-life of the food; milk and protein-based beverages exemplify foods that can be homogenized.

2.80 Hormones

Chemical substances secreted by various endocrine or ductless glands directly into the blood stream to regulate the functions of other organs.

2.81 Hulls

The outer covering of many foodgrains; examples are the horny covering (as in cottonseeds), leathery skin (as in sesame seeds) or parchment-like coating (as in soyabeans). This is removed when edible protein products are to be made from these oilseeds.

2.82 Hydrogenation

The process by which hydrogen is added to liquid oils using a catalyst to saturate and harden them.

2.83 Hyperchlorhydria

Excessive secretion of hydrochloric acid into the stomach by the gastric cells. An insufficient secretions is termed hypochlorhydria.

2.84 Hypervitaminosis

Clinical condition resulting from excessive intake of certain vitamins, such as vitamin A and vitamin D.

2.85 Infant Foods

Foods designed to meet the nutritional requirements of children from birth to about 12 months of age.

2.86 Intake

Quantity of food, or of any nutrient in it, that is consumed.

2.87 International Units

Units for measurement of the biological potency of several vitamins, for example, vitamin A, on an agreed International basis; the present tendency is to avoid such arbitrary units, and use ordinary units of mass (milligram or microgram).

2.88 Iron

Mineral needed by the body to make red blood cells and build muscles; anaemia results from its deficiency. Formulated foods may be fortified with several iron salts, ferrous sulphate being the commonest.

2.89 Joule

Unit of energy (*see* **2.55**); one calorie (*see* **2.32**) = 4·18 joules.

2.90 Keratomalacia

Destruction of the cornea of the eye and consequent blindness as a result of severe vitamin A deficiency (*see also* **2.181**).

2.91 Kernels

The inner, soft portion of oilseeds which carries the oil and protein; an alternative term is 'meats'.

2.92 Kwashiorkor

A condition in children resulting from deficiency of food and perhaps particularly of proteins. It manifests itself in the form of reddish or scanty hair, broken skin, swelling (oedema), a 'moon' face and apathy.

2.93 Lactic Acid

The fermentation product of the lactose of milk, present therefore in curds and buttermilk. It is also an intermediate of body metabolism, and is produced, for example, following muscular work.

2.94 Lactose

The sugar of mik, chemically a combination of glucose and galactose, to which it is broken down in the intestine.

2.95 Laminate

A packaging material consisting of two or more films bonded together to achieve better functional protection in such terms as greater strength, lower air permeability and less moisture ingress.

2.96 Leaven

To raise or lighten a batter or dough by aeration using yeast or baking powder.

2.97 Legumes

The edible seeds of leguminous plants which are usually good sources of protein. These include the pulses, and certain oilseeds like the groundnut and soyabean.

2.98 Lipolysis

Process of breakdown of fat into fatty acids through enzyme agency, and hence an indicator of quality and wholesomeness.

2.99 Load Test

A test to determine the state of vitamin deficiency of a person by administering a specified dose and noting the excretion pattern; in a deficiency state, a lesser proportion will be excreted.

2.100 Lysine

One of the essential amino acids, frequently marginal or deficient in cereal-based diets of poor quality.

2.101 Malnutrition

Condition of the body usually resulting from deficiency or lack of balance in essential nutrients, especially the major nutrients. Excessive intake of nutrients can also cause malnutrition.

2.102 Malt

Partly-germinated and toasted cereal grain, in which the natural food substances present (like starches) are modified, certain vitamins enhanced, and diastatic enzymes such as amylase, which is capable of breaking down starch developed. Barley and wheat malts are used to impart taste, vitamins and digestive enzymes to food formulations, and barley malt is employed in breweries and distilleries.

2.103 Malt Extract

A sweet, light-brown syrupy liquid which is the concentrated water extract of malt, and is used for its toasted flavour and nutrient content in foods and medicines.

2.104 Malting

The sprouting of water-swollen grains of cereals like barley, wheat, sorghum and *RAGI*, followed by slow drying during which starch is partly digested. A dried and powdered extract of malt can be added to other foods such as milk powder.

2.105 Maltose

A sugar derived from starch, chemically consisting of two linked glucose units.

2.106 Marasmus

Condition in children that is believed to arise from inadequacy of both calories and protein and characterized by wasted muscle, stunted growth and a wrinkled 'old man' appearance.

2.107 Margarine

A product which resembles butter in consistency, colour and flavour, except that it contains no butter fat and is made from hydrogenated vegetable oils.

2.108 Mass Feeding

See Feeding Programme (*see* **2.65**).

2.109 Metabolism

Chemical changes by which foods are built up into body tissues (anabolism) or broken down into energy or waste products destined for excretion (catabolism).

2.110 Methionine

One of the essential amino acids containing sulphur, which is frequently marginal or deficient when the proteins are entirely of vegetarian origin.

2.111 Microgram

One millionth part of a gram, or one-thousandth part of a milligram, designated by the symbol μg.

2.112 Micronutrients

The very small, milligram or microgram quantities of vitamins and minerals essential for proper functioning of the body.

2.113 Milk Powder

The powdery products resulting from removal of almost all water from whole or skim milk by roller or spray drying.

2.114 Milligram

One-thousandth part of a gram, abbreviated as mg.

2.115 Minerals

Inorganic substances required for the functioning of the body, such as iron, calcium, phosphorus and iodine.

2.116 Musty Odour

Stale or mouldy smell.

2.117 Net Dietary Protein Calories (NDpCal)

The proportion of calories in the diet derivable from protein, and corrected for quality of that protein. This proportion should be high in the early years of childhood to ensure proper growth.

2.118 Net Protein Utilization

A measure of protein quality. It is the percentage ratio of nitrogen retained by rats to their nitrogen intake; the nitrogen retained is the difference in carcass nitrogen (determined experimentally) between rats fed a test diet containing the test protein and those fed a diet free of protein.

2.119 Niacin

Vitamin of the B-group, essential for proper cell function and growth. Niacin is found in groundnuts, *DALS*, whole wheat and unmilled rice. Its deficiency causes pellagra (*see* **2.132**).

2.120 Nitrogen Balance

The difference between intake and excretion of nitrogen, which may be positive or negative.

2.121 Norm

A reference standard of measurement, such as is used for height or weight.

2.122 Nutrients

Ingredients of foods with specific functions in the nourishment of the body. They comprise carbohydrates, proteins and fats as macro (large) nutrients, and many vitamins and minerals as micro (small) nutrients.

2.123 Nutrition

Combination of processes by which the living organism receives and utilizes the food necessary for the maintenance of its functions and for the growth and renewal of its components. Also the study of food and its relationship to the well-being of the human or animal body.

2.124 Nutritional Status

State of nourishment as measured by various appropriate tests in respect either of total nutrition or specific nutrients.

2.125 Nutritive Food

Food, either natural or processed, which, besides energy, contributes significantly one or more nutrients.

2.126 Oilcake

The residue left after removal of oil from oilseeds using expeller (screw) — pressing or solvent-extraction; it is high in protein, and is used in animal feeds or fertilizers. Oilcake of special edible quality can be used for human feeding (*see* **2.53**).

2.127 Oilseeds

Oil-bearing materials used as sources of edible or industrial oils; the chief oilseeds which yield oils that are edible as such or after refining are the groundnut, sesame, rape/mustard, cottonseed, coconut, safflower, soyabean and sunflower.

2.128 Organoleptic Qualities

Properties perceived by the senses, such as colour, texture, flavour, taste and aroma.

2.129 Osteomalacia

Softening of bones through failure to lay down calcium and phosphorus as a result of inadequate supply of vitamin D and calcium, usually observed in women of child-bearing age.

2.130 Osteoporosis

Weakening of the bone matrix in old people through depletion of minerals, leading to insufficiency of bone material.

2.131 Pasteurization

A process by which a food like milk is held at a high temperature for a short period, immediately followed by chilling, so as to destroy harmful and spoilage organism with minimal changes in composition, flavour and nutritive value.

2.132 Pellagra

Skin itchiness, diarrhoea and dementia, resulting essentially from a deficiency of the vitamin niacin.

2.133 Peptization

Stabilization of a colloidal system by the addition of peptizing agents; these prevent coalescence by inducing surface charges on the colloidal particles.

2.134 Phosphates

Form in which phosphorus is found in foods and in the body. Phosphates play important roles in many biological reactions. Inorganic phosphates are used to buffer formulated foods against changes in the acid-base balance.

2.135 Precursor

A compound which can be used by the body to make another compound or nutrient, such as a vitamin. An example is *B*-carotene, a precursor of vitamin A; another is ergosterol, present in the skin, which is converted into vitamin D on exposure to sunlight.

2.136 Pre-school Children

Group term used to describe children from 12 to 60 months age, who are often nutritionally vulnerable. Younger pre-school children fall in the age group 12-36 months, and older pre-school children in the group 36 to 60 months.

2.137 Prevention of Food Adulteration Act and Rules

The Act and Rules define and lay down standards of quality for both natural and formulated foods, transgressions of which are penalized under the *Prevention of Food Adulteration Act* passed in 1954.

2.138 Protective Foods

Foods carrying a high level of vitamins, minerals and proteins, which play a role in safeguarding health.

2.139 Protein Concentrates

Edible products with protein levels considerably higher than originally present, and usually made from oilseeds like the groundnut, seasame, soya, cottonseed, etc, from leaves, or from fish.

2.140 Protein Efficiency Ratio

A measure of the quality of a protein in relation to that of a standard material like casein or skim milk powder. It is determined by growth studies in weaning rats.

2.141 Protein Energy Malnutrition (PEM, Protein-Calorie Malnutrition)

The condition arising from an insufficiency of energy (calories) in the diet, sometimes associated with protein deficiency to varying degrees (*see* **2.92** and **2.106**).

2.142 Protein Isolates

Products with protein levels approximating 85 percent, made by separation, mechanical concentration, and/or acid precipitation from solution.

2.143 Protein Quality or Score

The biological value of any protein, depending in turn on its digestibility and amino acid balance. It is expressed as a figure which represents the percent of the most limiting amino acid in the protein to that of the same amino acid in the reference protein (*see* **2.152**).

2.144 Protein-Rich Food

A food product with a high level of protein or a food carrying an enhanced level of protein compared to the normal product.

2.145 Protein Supplementation

Blending two or more protein sources to get a better amino acid balance, thus enhancing the quality of the entire protein.

2.146 Proteins

Macro-nutrients present in food, used by the body for building tissues and complex enzymes, and as a source of energy; chemically they consist of amino acids linked in straight head-to-tail chains (*see* **2.8**).

2.147 Proteolytic Enzymes

Enzymes which split proteins into simpler compounds during digestion.

2.148 Pulses

Edible seeds of leguminous plants, which include *DALS* and grams, and are important in the Indian diet as sources particularly of protein and B-group vitamins.

2.149 Pyridoxine

One of the water-soluble B-group of vitamins, sometimes termed Vitamin B_6 which is essential for body metabolism. Pyridoxine deficiency leads to dermatitis, muscular weakness and, in children, to convulsions. It is present in meat, liver, vegetables and whole cereal grains.

2.150 Rancid Taste

Any unpleasant departure from the normal taste of a food, usually brought on by oxidation, hydrolysis, fermentation and the like. The fat component is particularly susceptible to such off-flavours.

2.151 Recommended Daily Allowance (RDA)

Optimum quantity of various nutrients required to maintain health, as recommended, from time to time, by authoritative national or international agencies. These RDA's differ according to age, sex, nutritional stresses like pregnancy and lactation, and so on.

2.152 Reference Protein

A high-quality protein, like milk or egg protein used as a reference compound. FAO reference protein is a theoretical protein made up of just the right quantities of individual amino acids believed to be required by the human body.

2.153 Riboflavin

A water-soluble vitamin of the B-group, also termed as vitamin B_2, essential for proper cell function and growth, deficiency of which leads to roughness of the eyes, tongue, mouth corners and skin; it is found in *DALS*, milk green leafy vegetables and liver.

2.154 Rickets

Deformation or defective formation of bones, especially in childern, as a result of deficiency of vitamin D or calcium.

2.155 Roughage

Undigestible fibres and starches found particularly in cereals, fruits and vegetables which, though not nutritious, help the movement of food down the digestive tract, and contribute to easy passage of stools by keeping them bulky and soft (*see* **2.36**).

2.156 Saccharin

An artificial sweetening compound 300 times as sweet as sugar and extensively used by diabetics.

2.157 Salmonella

A class of bacteria which cause such infections as typhoid, paratyphoid and gastro-enteritis.

2.158 Scurvy

Exudation of blood from the capillaries into the skin, joints and gums brought about by a deficiency of vitamin C.

2.159 Solvent-Extracted

A term describing the oil or meal which results from the treatment of oilseed materials with solvents such as hexane so as to dissolve and extract the oil. Use of food-grade solvents is obligatory when edible products are to be made.

2.160 Starch

A carbohydrate found in cereals, potatoes, bananas and other plant materials, and the largest nutrient present in a normal diet. Chemically, starch consists of units of glucose, into which it is broken down during digestion.

2.161 Sterilization

Heat and/or steam treatment either of foods to destroy micro-organisms which would cause spoilage, or of containers or implements to destroy infectious organisms.

2.162 Sub-Clinical Deficiency

State of health in which clinical signs are absent and cannot be detected in a routine medical check-up but can be detected biochemically.

2.163 Sucrose

The sugar found in sugarcane, beetroot and many fruits, which in common speech is called table sugar or simply sugar.

2.164 Sugars

The simplest form of carbohydrates. The simple monosaccharide sugars consist of 5-carbon (ribose) or 6-carbon (glucose, fructose, galactose) entities, while the disaccharides include such compounds as sucrose or cane sugar (glucose + fructose), lactose or milk sugar (glucose + galactose) and maltose (glucose + glucose).

2.165 Supplementation

Addition to food of a nutrient in which the diet is deficient.

2.166 Thiamine

A water-soluble vitamin of the B-group, also termed vitamin B_1, which is found in whole cereals, *DALS*, nuts, meat and liver; its deficiency leads to loss of appetite, muscular weakness and moodiness.

2.167 Toxins

Harmful substances which are present naturally or enter foods adventitiously, or are elaborated in them by bacteria or moulds.

2.168 Urease

An enzyme which hydrolyses urea to ammonia, carbon dioxide and water. It is present in soyabean, soya proteins, and several *DALS* and grams, and is destroyed by moist heat treatment.

2.169 *VANASPATI*

Any refined edible vegetable oil or oils subjected to a process of hydrogenation in any form.

2.170 Vegetable Oils

Liquid fats obtained from the kernels of several oilseeds (sesame, rape, mustard) and certain legumes (groundnut, soyabean), or from fruit coats (coconut, palm, olive).

2.171 Vitamins

Essential food nutrients required in very small quantities for the proper functioning of the body; chemically they are of widely diverse types.

2.172 Vitamin A

A fat-soluble vitamin, chemically termed retinol, which is especially essential in the visual process. The vitamin can also reach the body as its precursor B-carotene (*see* **2.34**). It is present in green leafy vegetables, papaya, milk, carrots, etc.

2.173 Vitamin B-Group

This group consists of about a dozen water-soluble vitamins, each with a specific function. Among them are thiamine (B_1), riboflavin (B_2), pyridoxine (B_6), niacin, folic acid, biotin, pantothenic acid and cyano cobalamine (B_{12}).

2.174 Vitamin C

A water-soluble vitamin, chemically called ascorbic acid, whose absence of which causes scurvy (*see* **2.158**). It strengthens the bones and teeth, and protects against such infections as the common cold. It is easily oxidized by air, especially in the presence of heat, light and metals. It is present in citrus fruits, *AMLA*, tomatoes, guava, grapes and sprouted grains and pulses.

2.175 Vitamin D

A fat-soluble vitamin, chemically called calciferol, important for bone formation, and in ensuring calcium deposition in bones. It can be produced in the skin by exposure to the sun and is present in fish liver oils.

2.176 Vitamin E

A fat-soluble vitamin, chemically called tocopherol, which could be important in ensuring normal pregnancy, birth and lactation, and is an important antioxidant in the body.

It is present in the germs of cereals and in vegetable oils.

2.177 Vulnerable Groups

Segments of the population most susceptible to malnutrition. These have been generally identified as weaning children, pregnant women and lactating (nursing) mothers especially of low-income groups.

2.178 Water-Soluble Vitamins

These comprise all the vitamins of the B-group, and vitamin C.

2.179 Weaning

The gradual transition from breast milk to other liquid and solid foods, which could constitute a danger point in nutritional terms.

2.180 Weaning Food

One designed to provide all the nutrients required by a child as it moves over from breast milk to other foods, say from the age of six months.

2.181 Xerophthalmia

Dryness, night blindness and finally opacity of the cornea resulting from the deficiency of vitamin A and also reversible by administration of the latter at an early stage (*see* **2.90**).

2.182 Yeast

A class of micro-organisms, for example, *Saccharomyces cerevisiae*, containing enzymes which are used as ferments in baking (baker's yeast) or brewing (brewer's yeast); these yeasts, and food yeast such as *Candida utilis*, have protein of fair biological quality as well as B-group vitamins.

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